CERTIFICATE OF TRANSMISSION BY FACSIMILE (37 CFR 1.8) Applicant(s): KOTLARSKI, T.			Docket No. 989
Serial No. 09/445,046	Filing Date 08/09/99	Examiner GRAHAM, G.	Group Art Unit 1744

Invention:

WIPER BLADE FOR WINDOWS OF MOTOR VEHICLES

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UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: G. Graham *Art Unit:* 1744

In re:

Applicant: KOTLARSKI

Serial No.: 09/445,046

Filed: February 12, 2000

SUPPLEMENTAL BRIEF ON APPEAL

February 28, 2002

Hon. Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Sir:

This is a Brief on Appeal from the final rejection of claims 5-14 by the Primary Examiner.

1. Real Party of Interest

The real party of interest in this application is Robert Bosch GmbH, Postfach 30 02 20, D-70442 Stuttgart, Germany.

2. Related Appeals and Interferences

There are no related appeals or interferences known to appellant, the appellant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's Decision in the pending appeal.

3. Status of Claims

In the present application all claims were rejected by the Examiner in the Final Action.

4. Status of Amendments

Subsequently to the Final Office Action on July 27, 2001, appellant has submitted a Request for Reconsideration of September 26, 2001. The Request for Reconsideration was entered by the Examiner.

5. Summary of the Invention

A wiper blade 10 shown in Fig. 1 has an elongated, spring-elastic carrying element 12 for a wiper strip 14, and this carrying element 12 is shown separately in Fig. 8. The carrying element 12 and the wiper strip 14 are connected to each other so that their longitudinal axes are parallel. A connecting device 16 is disposed on the top side of the carrying element 12 remote from the window 15 to be wiped - indicated with dot-and-dash lines in Fig. 1 - and with the aid of this connecting device 16, the wiper blade 10 can be detachably connected to a driven wiper arm 18 that is supported on the body of a motor vehicle. The elongated, rubber-elastic wiper strip 14 is disposed on the underside of the carrying element 12 oriented toward the window 15. A hook, which is used as a reciprocal connecting means, is formed onto the free end 20 of the wiper arm 18 and encompasses a pivot bolt 22 belonging to the connecting device 16 of the wiper blade 10. The retention between the wiper arm 18 and the wiper blade 10 is performed by known securing means. The wiper arm 18 and therefore also its hook end 20 are loaded in the direction of the arrow 24 in relation to the window 15 to be wiped, whose surface to be wiped is indicated in Figs. 1 and 2 by means of a line 26. The force (arrow 24) places the wiper blade 10 over its entire length against the surface 26 of the window 15 to be wiped. Since the dot-and-dash line 26 Fig. 2 is intended to represent the sharpest curvature of the window surface in the region of the wiping field, it is clearly evident that the

curvature of the as yet unloaded wiper blade 10 resting with both of its ends against the window is sharper than the maximal curvature of the spherically curved window 15. Due to the pressure (arrow 24), the wiper blade 10 rests over its entire length against the window surface 26 with its wiper lip 28 that belongs to the wiper strip 14. This produces a stress in the band-like spring-elastic carrying element 12, which assures a proper contact of the wiper strip 14 or the wiper lip 28 over its entire length against the motor vehicle window 15. During wiper operation, the wiper arm 18 moves the wiper blade 10 lateral to its longitudinal span, across the window 15. This wiping or working motion is indicated in Fig. 1 with the double arrow 29.

As shown by Figs. 3 and 4, the wiper strip 14 is disposed on the lower band surface of the carrying element 12 oriented toward the window 15. Spaced apart from the carrying element 12, the wiper strip 14 is constricted from its two long sides in such a way that a tilting piece 30 remains in its longitudinal center region and extends over the entire length of the wiper strip 14. The tilting piece 30 transitions into the wiper lip 28, which has an essentially wedge-shaped cross section. Because of the contact force (arrow 24), the wiper blade or the wiper lip 28 is pressed against the surface 26 of the window 15 to be wiped, wherein due to the influence of the wiping movement - one of the two opposing wiping motions

(double arrow 29) in particular is considered in Figs. 3 and 4 and is indicated by the direction arrow 32 -, this wiper lip 28 tilts into a so-called drag position in which the wiper lip is supported over its entire length against the part of the wiper strip 14 that is secured to the carrying element 12. This support, which is indicated in Figs. 3 and 4 with the arrow 34, is always produced - depending on the respective wiping direction (double arrow 29 or arrow 32) - against the upper edge of the wiper lip 28 disposed toward the rear in the respective wiping direction so that it is always guided across the window in a so-called drag position. This drag position is required for an effective and low-noise operation of the wiper apparatus. The reversal of the drag position takes place in the so-called reversal position of the wiper blade 10- when this reverses its wiping motion (double arrow 29). The wiper blade executes a back and forth motion, which is induced by the tilting over of the wiper lip 28. The upward motion occurs counter to the direction 24 and consequently also counter to the contact force. In the other wiping direction directed counter to the arrow 32, a mirror image of the Figs. 3 and 4 is consequently produced.

In order to produce as low-noise as possible a tilting over of the wiper lip 28 from its one drag position into its other drag position, the carrying element 12 used for distributing the contact force (arrow 24) is designed so

that the contact force of the wiper strip 24 or the wiper lip 28 against the window surface 26 is greater in its center section 36 (Fig. 8) than in at least one of the two end sections 38. This concept, for example, can be incorporated, as shown in a graphic representation according \to Figs. 5 to 7. According to Fig. 5, the carrying element 12 is designed so that viewed in terms of the length 40 of the wiper blade, its center region 36 has a virtually uniform contact force (line 44) and that this contact force 44 sharply decreases at both end sections 38 of the wiper blade. The line 42 indicates a possible position of the pivot bolt 22, i.e. the engagement point of the wiper arm-induced contact force.

In another embodiment (Fig. 6), the carrying element 12 is designed so that viewed in terms of the length 140 of the wiper blade, starting from the one and 138 of the wiper blade until well beyond its linkage point (line 142), the contact force 24 is of a uniform magnitude (line 144) until it decreases sharply in the region of the other and 139 of the wiper blade. The possible linkage point of the wiper blade to the wiper arm has been labeled 142 in Fig. 6.

Another position design of the wiper blade according to the invention, which is shown in Fig. 7, provides that the contact pressure or

contact force (244) of the wiper lip 28 against the window surface 26 is essentially uniform in the center region 242 of the wiper blade - where the linkage point of the wiper arm 18 is disposed - and that it decreases slightly toward one and 238 of the wiper blade whereas it decreases considerably in the vicinity of the other and 239 of the wiper blade. With this design of the wiper blade, the engagement point 243 of the wiper arm 18, is disposed on the wiper blade outside the center of the wiper blade length 240, as in the design according to Fig. 6. Naturally, it is possible to use such a positioning of the linkage point even in wiper blades that are designed in accordance with Fig. 5. The different designs of the wiper blade can be required by particular window types, which differ from one another, for example due to the type of spherical curvatures of the windows.

Fig. 8 shows a possible curvature course of the carrying element 12, which can produce a pressure distribution of the wiper lip 38 against the window 15, as is graphically depicted in Fig. 5. With this spring-elastic carrying element 12, which when unloaded has a sharper concave curvature than the window in the region of the wiping field being swept across by the wiper blade, the curvature course is embodied so that it is sharper in the center section 36 of the carrying element than at its end sections 38. In order to achieve the desired contact force distribution,

however, it is also conceivable to reduce the end sections 38 of the carrying element 12 cross sectionally so that a comparable effect is achieved.

The reduction of the contact force of the wiper lip 28 against the window surface 26 in the region of one or both wiper blade ends, prevents an abrupt flipping over or snapping over of the wiper lip 28 from its one drag position into its other drag position. In contrast, with the wiper blade according to the invention, a comparatively gentle tilting over of the wiper lip is produced, starting from the wiper blade end and continuing to the wiper lip center or to the other wiper lip end. Figs. 3 and 4, in connection with Fig. 1, show that even with spherically curved windows, the less-loaded end sections of the wiper lip 28 still rest effectively against the window surface. A comparison of Figs. 3 and 4 shows this, from which it is clear that in the less-loaded end region (Fig. 4), the wiper lip 28 is disposed more steeply in relation to the window surface 26 than in its center section (Fig. 3), where the greater contact force is in effect. This steeper disposition of the wiper lip 28 encourages the beginning of the tilting over the wiper lip when the reverse motion of the wiping motion begins (double arrow 29).

It is common to all of the exemplary embodiments that the contact pressure (arrow 24) of the wiper strip 14 against the window 15 is

greater in its center section 36 than in at least one of its two end sections 38. This is true even if in contrast to the currently shown wiper blade 10 with a one-piece carrying element 12 depicted as a spring rail, the carrying element is embodied as having a number of parts. The only crucial issue is the distribution of the contact pressure according to the invention.

This is disclosed on pages 1-10 of the specification and shown in the drawings.

6. Issues

In the Final Office Action claims 5-7, 9-11 and 13-14 were rejected under 35 U.S.C. 102 over the patent to Arai. Thus, the first issue under appeal is whether these claims are patentable over this reference in the sense of 35 U.S.C. 102.

Claims 9-14 were rejected under 35 U.S.C. 103 over the patent to Appel in view of the patent to Arai. Thus, the second issue under appeal is whether claims 9-14 are rejectable over the combination of these references.

Claim 8 was rejected under 35 U.S.C. 103 over the patent to Arai in view of the patent to Appel. Thus, the third issue on appeal is whether claim 8 is rejectable as obvious under 35 U.S.C. 103 over the combination of these references.

The claims were also rejected under 35 U.S.C. 112. This constitutes the fourth issue under appeal.

7. Grouping of claims

Claims 5, 9 and 14 are separately patentable. As for the other claims, they stand and fall together with the corresponding independent claims.

8. Argument

Claim 13 has been cancelled. It is therefore believed that the grounds for the rejection under 35 U.S.C. 112 are no longer applicable.

Turning now to the references and particularly to the new features of present invention which are defined in claim 5, it is respectfully submitted that in addition to other features, it is stated now that the wiper

strip has a wiper lip which contacts the window, the wiper blade is constructed such that the wiper strip starts to tilt over in reversal positions in wiping direction of the wiper blade in a region of the reduced contact force and continues to tilt while moving to a region of a greater contact force against the window.

It is therefore believed to be clear that the inventive wiper device has a wiper lip which is pressed against the window and in reversal positions or near the reversal positions tilts over from one side to the other side. Due to the specific design of the carrying element as well as the thusly produced contact force distribution which is different than in the prior art, the abrupt snapping over of the entire wiper lip and the unpleasant noise is eliminated. The wiper lip starts in one or both outer points to tilt over and draws during movement of the wiper blade over the window to the regions of the wiper blade which have a greater contact force. The knocking noise is reduced to a small central region, in which a part of the wiper lip as a whole can be tilted over and cause a softer knocking noise. Such a wiper device is not disclosed in the prior art and can not be derived from it as a matter of obviousness. It is not disclosed either in the patent to Arai or in the patent to Appel. Therefore it is believed that claim 5 as amended should be considered as patentably distinguishing over the art and should be allowed.

It is therefore believed that the first issue on appeal has to be decided by reversing the Examiner's rejection of claim 5.

Claim 9 specifically defines that the wiper strip has a center section and two end sections such that a contact force of the wiper strip would be greater in the center section than in at least one of the two end sections. These features of the present invention are also not disclosed in the references.

As for claim 14, this claim has been amended by appellant. It should be mentioned that in the appellant's opinion the Examiner's analysis of claim 14 is not accurate. The patent to Arai does not disclose any wiper blade whose curvature is greater in a central region than in the outer regions. Contrary to this, Figures 5 and 6 show the curvatures in the outer regions which are significantly greater than in the central region. It is possible that the Examiner meant to use the term "radius". The greater the radius (the flatter is an arc), the smaller the curvature. A greater curvature requires a smaller radius. Figures 5 and 6 in the patent to Arai do not disclose that the curvature in the central region is greater or the radius of the central region is smaller than in the regions 3a.

Claim 14 has been particularly amended to define that the carrying element has the first and second sides, wherein the wiper strip is arranged at the first side, while a connecting element is placed at the second side which is opposite to the first side. The carrying element in the region of the wiper strip has a concave curvature which in the central region is greater than in the end regions.

These features of the present invention are not disclosed either in the patent to Aral or in the patent to Appel. It is therefore believed that claim 14 should also be considered as patentably distinguishing over the art and should also be allowed. It is believed that this is how the second issue under appeal has to be taken care of, and the rejection of claim 14 should be reversed as well.

Reconsideration and allowance of present application is most respectfully requested.

Respectfully submitted,

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APPENDIX

5. A wiper device for motor vehicles, comprising a driven wiper arm and a wiper blade connected to said wiper arm, said wiper arm moving said wiper blade back and forth across the window of a motor vehicle laterally to a longitudinal space of the window and loading said wiper blade in relation to the window, said wiper blade including an elongated wiper strip placeable against the window, and an elongated spring-elastic carrying element disposed on a side of said wiper strip remote from the window and having connecting means for connecting said wiper arm thereto, said spring-elastic carrying element extending parallel to an axis of elongation of said wiper strip to distribute a contact force applied by said wiper strip under the action of said wiper arm against the window over an entire length of said wiper strip, said wiper strip having a center section and two end sections, said contact force of said wiper strip being greater in said center section than in at least one of said two end sections, said wiper strip having a wiper lip adapted to contact the window and is constructed such that it tilts over in reversal positions in wiping direction of said wiper blade in a region of a reduced contact force and continues to tilt in a region of a greater contact force against the window.

6. The wiper device according to claim 5, wherein said contact force of said wiper strip against the window is lower at said two end sections than in said center section.

7. The wiper device according to claim 5, wherein said contact force of said wiper strip against the window is at least almost of a uniform magnitude in said center section and decreases at said end sections.

8. The wiper device according to claim 5, wherein said spring-elastic carrying element has on a side thereof oriented toward the window a concave curvature that is sharper than the sharpest curvature of a spherically curved window in a region of a wiping field that can be swept across by said wiper blade and a concave curvature in said center section of the carrying element is sharper than in said end sections thereof.

9. A wiper blade for a wiping device of a motor vehicle for wiping a window of the motor vehicle, comprising an elongated wiper strip placeable against the window, and an elongated spring-elastic carrying element disposed on a side of the wiper strip remote from the window, said spring-elastic carrying element extending parallel to an axis of elongation of said wiper strip to distribute a contact force against the window over an entire

length of said wiper strip, said wiper strip having a center section and two end sections, such that a contact force of said wiper strip would be greater in said center section than in at least one of said two end sections.

10. The wiper blade according to claim 9, wherein said contact force of said wiper strip against the window would be lower at said two end sections than in said center section.

11. The wiper blade according to claim 9, wherein said contact force of said wiper strip against the window would be at least almost a uniform magnitude in said center section and decreases at the said end sections.

12. The wiper blade according to claim 9, wherein said spring-elastic carrying element has on a side thereof oriented toward the window a concave curvature that is sharper than the sharpest curvature of a spherically curved window in a region of a wiping field that can be swept across by said wiper blade and a concave curvature in said center section of the carrying element is sharper than in said end sections thereof.

14. A wiper blade for a wiper device of a motor vehicle for wiping a window of the motor vehicle, comprising an elongated wiper strip placeable against the window, and an elongated spring-elastic carrying element disposed on a side of the wiper strip remote from the window, said spring-elastic carrying element extending parallel to an axis of elongation of said wiper strip to distribute a contact force against the window over an entire length of said wiper strip, said spring elastic carrying element having a first side and a second side such that the wiper strip is placed at the first side, while at the second side which is opposite to the first side a connecting element is placed, said spring-elastic carrying element having a curvature which is sharper in a center section of said spring-elastic carrying element than in an end section thereof.